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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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DORSEY & WHITNEY LLP		
INTELLECTUAL PROPERTY DEPARTMENT		
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EXAMINER	
BOYCE, ANDRE D	

ART UNIT	PAPER NUMBER
3623	

MAIL DATE	DELIVERY MODE
12/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/824,850	<b>Applicant(s)</b> JACOBS ET AL.	
	<b>Examiner</b> Andre Boyce	<b>Art Unit</b> 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4-6, 12, 14-19, 22-24, 30 and 32-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-6, 12, 14-19, 22-24, 30 and 32-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 9, 2007 has been entered.
2. Claims 4 and 22 have been amended. Claims 4-6, 12, 14-19, 22-24, 30 and 32-37 are pending.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 4-6, 12 and 14-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the schedulable time free block" in lines 9-10.

There is insufficient antecedent basis for this limitation in the claim. Claims 5, 6, 12 and 14-19 depend therefrom.

Claims 14 and 15 recite the limitation "the at least one expansion block." There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the at least one load block." There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 4-6, 12, 14-19, 22-24, 30 and 32-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lesaint et al (USPN 6,578,005), in view of Babayev et al (USPN 5,615,121).
7. As per claim 4, Lesaint et al disclose a method for finding an opening in which to fit an order in a schedule (provisional generation system 30/31 used to program real-time modifier 40 to allocate tasks to technicians, column 11, lines 3-7), comprising: computing an amount of free time required in a shift to fit the order (estimated time of completion, which includes the estimated time of arrival plus the duration of the task, column 18, lines 56-59) by calculating a travel time between a first activity and a second activity (i.e.,  $t$  = journey time between two tasks, column 13, lines 51-54), calculating a difference travel time defined as a result of a subtraction of the travel time between the first activity and the second activity and the travel time of the order and the second activity (i.e., travel from a task inserted into a schedule used in determining whether insertion may be made, wherein the cost of the revised

schedule is compared with the best existing value, column 22, lines 58-60), further calculating a job time defined as the time that the order will take to be performed in the shift (estimated time of completion of the task, column 18, lines 56-57), and summing the travel time, the difference travel time, and the job time (estimated time of completion, including time to complete the task and estimated time of arrival, column 18, lines 56-59); creating a schedulable time block from a virtual free time block, (wherein the task may be fitted, column 22, lines 48-51), wherein the schedulable time free block includes a primary block, zero or more expansion blocks, and zero or more load blocks (i.e., allowable margins, including deallocation and movement of a task, column 22, lines 51-55, column 23, lines 16-28), the expansion blocks having time from relocating assigned orders in the shift and the load blocks having time from removing assigned orders from the shift; examining the primary block, wherein the primary block is a candidate to fit the order if a duration of the primary block, excluding at least one break, is greater than or equal to the amount of free time required in the shift to fit the order (pre-scheduler 30 calculates time the technician is next available and position each break at its earliest possible start time, column 11, lines 50-54 and 64-65), where the primary block is not a candidate, computing extra time by relocating assigned orders earlier or later in time in a portion of the shift, the computation of extra time including computing an amount of time that the portion of the shift can be relocated by aggregating a number of virtual free time blocks in the portion of the shift (i.e., a position is examined to see if a task can be fitted, wherein the tour in the gap must be big enough to include the

task or, if not, it must be possible to delay all subsequent tasks in order to create a gap large enough to insert the task, column 22, lines 31-39); and creating at least one opening in the shift from the schedulable time block (i.e., allocation of tasks to technicians, column 11, lines 3-7).

Lesaint does not explicitly disclose presenting to a customer at least one option of fitting the order in the schedule to perform a desired service. Babayev et al disclose if the customer preferred time interval cannot be accommodated, then an alternative appointment time may be provided, relatively close to the preferred time interval (column 4, lines 45-50). Both Lesaint et al and Babayev disclose tools for scheduling tasks, wherein orders are received from customers, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include presenting to a customer at least one option of fitting the order in the schedule to perform a desired service in Lesaint et al, as seen in Babayev et al, as an efficient manner of receiving and distributing customer orders to the correct technician in Lesaint et al, thereby improving customer service.

As per claim 5, Lesaint et al disclose generating a list of shifts from a window defined over a set of shifts of a worker (i.e., optimizing system 31 may move tasks within their time windows and insert tasks before, between, or after them, column 16, lines 12-14).

As per claim 6, Lesaint et al disclose generating a list of virtual free time blocks from a shift of a worker (i.e., scheduling the tour of the technician, column 10, lines 26-30).

As per claim 12, Lesaint et al disclose computing the amount of time that the portion of the shift must be shifted, defined as a result of a subtraction of the amount of free time required in the shift to accommodate the order and a time available in the virtual free time block (i.e., pre-scheduler 30 calculates the time the technician is next available, using expected duration plus travel time, column 11, lines 50-54).

As per claim 14, Lesaint et al disclose computing the extra time by relocating a portion of the shift to later in time in the shift (i.e., calculating the earliest and latest that each task may be started, when attempting to add tasks to the tour, column 11, lines 38-41, wherein the primary block is a candidate to fit the order if the extra time plus the duration of the primary block is greater than or equal to the amount of free time required in the shift to fit the order (i.e., calculation of the time the technician is next available, including duration of the activity plus travel time, column 11, lines 51-54), and updating the at least one expansion block if the primary block is a candidate (i.e., working out the earliest and latest time tasks may be started, column 11, lines 38-41).

As per claim 15, Lesaint et al disclose computing extra time by relocating a portion of the shift to earlier in time in the shift (i.e., bringing forward the task a amount of time, column 17, lines 26-30), if the act of executing the act of computing the extra time by relocating a portion of the shift to later in time and the act of examining the primary block determine that the primary block is not a candidate (i.e., delaying a task the same amount of time as bringing another task forward, column 17, lines 30-35), wherein the primary block is a candidate to fit the order if the extra

time plus the duration of the primary block is greater than or equal to the amount of free time required in the shift to fit the order (i.e., equal to the shift in time), and updating the at least one expansion block if the primary block is a candidate (i.e., updating of tasks that improves the cost function, column 17, lines 35-38).

As per claim 16, Lesaint et al disclose eliminating the virtual free time block from further consideration if the act of computing the extra time by relocating a portion of the shift to earlier in time in the shift and the act of examining the primary block determine that the primary block is not a candidate (i.e., the cost of moving the task forward is a greater cost than delaying the subsequent task, thus no move, column 17, lines 26-30).

As per claim 17, Lesaint et al disclose checking a load limit, including adding the amount of free time required in the shift to fit the order to a current load of the shift to define a new load (i.e., position is examined to see if the task can be fitted into the position, wherein the tour gap must be big enough to include the task, or to delay all subsequent tasks, column 22, lines 35-39), and wherein checking includes comparing the new load against the load limit (i.e., all tours are examined, until valid position is found, column 22, lines 40-42).

As per claim 18, Lesaint et al disclose reducing a total load of the shift by finding at least one virtual free time blocks to be removed (i.e., delay of all subsequent tasks in order to create a gap large enough to insert the task, column 22, lines 35-39), wherein the act of reducing executes an act of adding the at least one virtual free time block to be removed (i.e., time block created by delay of subsequent tasks),



and updating the at least one load block if the act of finding finds at least one virtual free time block to be removed (i.e., task inserted into schedule and revised cost calculated, column 22, lines 61-63).

As per claim 19, Lesaint et al disclose eliminating the virtual free time block if the act of reducing fails to reduce the total load of the shift to fit the order (i.e., cost of revised schedule is compared against cost of best existing value, column 22, lines 63-66).

Claims 22-24, 30, 32-37 are rejected based upon the rejection of claims 4-6, 12, 14-19, respectively, since they are the computer readable medium claims corresponding to the method claims.

### ***Response to Arguments***

8. In the Remarks, Applicant argues that Lesaint et al does not disclose calculating a difference travel time, and that the Examiner's arguments mischaracterize portions of Lesaint. The Examiner respectfully disagrees. Lesaint discloses that the if the technician already has tasks scheduled in his tour then the travel time will be from the latest position to the task (column 13, lines 39-41). Moreover, Lesaint discloses travel to and from a task inserted into a schedule used in determining whether insertion may be made (column 22, lines 58-60), wherein for it to be possible to fit the task into the tour, the gap must be big enough to include the task (including the travel time), or, if not, it must be possible to delay all subsequent tasks in order to create a gap large enough to insert the task (column 22, lines 35-39). As such,

wherein the cost of the revised schedule, which includes the schedule with the new travel time,  $t(n-c)$ , is compared with the best existing value, which inherently includes the travel time between the existing orders, i.e.,  $t(b-c)$ , thus necessarily calculating a difference travel time, via the comparison of the costs of the schedules (column 22, lines 61-66). Moreover, contrary to Applicant's assertion, the best existing value does not include the newly inserted task, because the best existing value is compared to the revised schedule, which does include the newly inserted task. In other words, following Applicant's reasoning, both the revised schedule and the best existing value (i.e., best existing value schedule) contain the newly inserted task. The Examiner submits that this is an incorrect interpretation of Lesaint, as seen in column 22 and figure 9. As such, Lesaint indeed discloses calculating a difference travel time.

Applicant also argues that Lesaint does not disclose creating a schedulable time block from a virtual free time block valid position, wherein the schedulable time free block includes a primary block, zero or more expansion blocks, and zero or more load blocks; the expansion blocks having time from relocating assigned orders in the shift and the load blocks having time from removing assigned orders from the shift. The Examiner respectfully disagrees. First, it is noted that claim 4 recites "...zero or more expansion blocks, and zero or more load blocks..." while claim 22 recites "...can further include at least one of an expansion block and a load block..." (emphasis added). As such, Applicant's claim language may be interpreted as having neither an expansion block nor a load block. In addition, Lesaint discloses

creating a schedulable time block from a virtual free time block valid position, (wherein the task may be fitted, column 22, lines 48-51), wherein the schedulable time free block includes a primary block (i.e., allowable margins, including deallocation and movement of a task, column 22, lines 51-55, column 23, lines 16-28).

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Boyce whose telephone number is (571) 272-6726. The examiner can normally be reached on 9:30-6pm M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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adb  
December 23, 2007

  
ANDRE BOYCE  
PATENT EXAMINER  
AU. 3623